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 Syllabus

Big Data & Data Science

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Big Data & Data Science

Our goal at CertMind is to certify the skills of professionals working in the Technology context. To achieve this, we seek to ensure that professionals demonstrate their skills and knowledge through the application of an International Certification Exam.

Certification category

Main category: Tecnologías emergentes

Category: Big Data

Subcategory: Big Data & Data Science



Scope of certification

The purpose of the Certification in Big Data & Data Science is to show that the professional has the knowledge about the basic concepts, types, classification and characteristics of data according to its structure, understands the concepts of analysis and analytics of Big Data, business context and knows the technologies related to Big Data; also, must know the qualities and field of action of a data scientist; in order to be competent in the technological and professional world, generating value for the organization to which it belongs.

Prerequisites

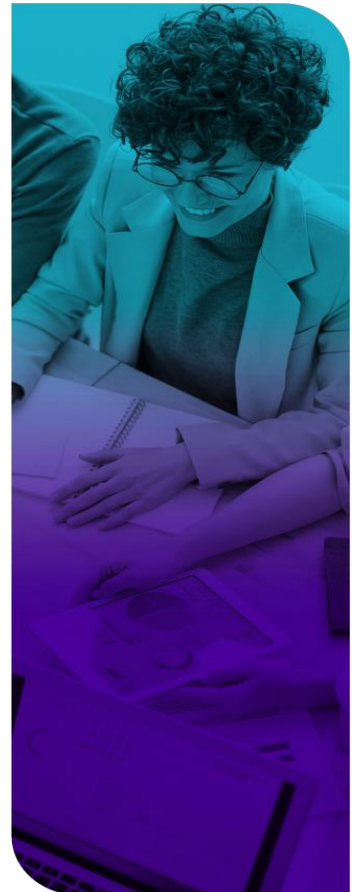
- Be of legal age, according to the minimum age determined by law (according to the National Identity Card that must be uploaded to the platform).
- Have basic knowledge of reading, writing and basic arithmetic: addition, subtraction, multiplication and division.
- Reading and acceptance of the Code of Ethics available on the platform before taking the certification exam.

Code of Ethics

All certified professionals must know, accept and abide by the Code of Ethics, which is available for consultation on the platform.

Recommendations

- It is highly recommended that the professional attends a formal Big Data & Data Science training of at least 24 hours, segmented into 6 sessions of approximately 4 hours.



Required competencies and job description

In order to ensure that the professional has the minimum competencies and knowledge that can be applied in a real environment, the following topics are addressed in the exam:

Module	Job Description	Required competencies
1.Prologue	Recognize the definition and concepts of Big Data, the characteristics of data according to its structure, relational and non-relational data models, the differences between the 7Vs, the characteristics of the nine stages of the life cycle.	<ol style="list-style-type: none"> 1. Basic concepts 2. Big Data and environments 3. The 7 Vs of Big Data 4. Stages of the Big Data lifecycle (9 stages)
2. Big Data analytics and analysis	Learn each of the types of analysis and analytics related to Big Data and the different types of business intelligence (BI), to demonstrate the basic statistical knowledge necessary to be a data analyst.	<ol style="list-style-type: none"> 1. Analytics and its types 2. Analytics and its types 3. Statistical analysis 4. Visual Analytics 5. Machine Learning 6. Semantic analysis 7. Traditional Business Intelligence (BI)
3. Business context	Understand the business aspects of Big Data, identify the main benefits and technical concepts of data security and privacy, recognizing the business drivers, technology, tools, opportunities and challenges affecting the business ecosystem.	<ol style="list-style-type: none"> 1. Business Context 2. Business and technology drivers of Big Data 3. Big Data Analytics and Visualization 4. Big Data Opportunities and Challenges

Module	Job Description	Required competencies
4. How to become a Data Scientist?	Understand the roadmap that leads to a successful adoption of Cloud Computing services, understanding the roles and possibilities that are relevant to gaining benefits from the Cloud and identifying the method to migrate your applications to the Cloud.	<ol style="list-style-type: none"> 1. What is data science? 2. Data Scientist
5. Traditional technologies related to Big Data	Identify the characteristics, types, phases, differences, benefits, elements of technologies related to Big Data.	<ol style="list-style-type: none"> 1. Traditional technologies related to Big Data 2. The cycle for data consolidation: ETL 3. OLTP and OLAP systems 4. Data Warehouse 5. Data Marts
6.Hadoop	Ensure understanding of the basic components of the Framework (YARN, HDFS, MapReduce), understand the ecosystem technologies, know the different platforms that offer Cloud services and know how to integrate Hadoop in organizations.	<ol style="list-style-type: none"> 1. What is Hadoop? 2. Components 3. Hadoop Ecosystem 4. Cloud Services 5. How to integrate Hadoop into your enterprise?

Evaluation of skills

CertMind performs two types of assessment to ensure that the professional has the required competencies:

- 1. Multiple choice questions with only one answer:** this evaluation modality consists of theoretical questions of multiple-choice single answer that seek to measure the degree to which the professional has understood the theoretical concepts of the certification.
- 2. Case study:** Its structure is similar to that of the questions mentioned in the previous section, the difference being that, instead of asking about a particular concept, it presents a description of a situation that takes place in the real context and that must be analyzed by the professional in such a way that he/she can first identify the problem and then evaluate which of the options presented reflects the best solution to the problem situation.

Competition	Questions (1)	Case study (2)
Recognize the definition and concepts of Big Data, the characteristics of data according to its structure, relational and non-relational data models, the differences between the 7Vs, the characteristics of the nine stages of the life cycle.	X	
Learn each of the types of analysis and analytics related to Big Data and the different types of business intelligence (BI), to demonstrate the basic statistical knowledge necessary to be a data analyst.	X	X
Understand the business aspects of Big Data, identify the main benefits and technical concepts of data security and privacy, recognizing the business drivers, technology, tools, opportunities and challenges affecting the business ecosystem.	X	
Understand the roadmap that leads to a successful adoption of Cloud Computing services, understanding the roles and possibilities that are relevant to gaining benefits from the Cloud and identifying the method to migrate your applications to the Cloud.	X	X

Competition	Questions (1)	Case study (2)
Identify the characteristics, types, phases, differences, benefits, elements of technologies related to Big Data.	X	
Ensure understanding of the basic components of the Framework (YARN, HDFS, MapReduce), understand the ecosystem technologies, know the different platforms that offer Cloud services and know how to integrate Hadoop in organizations.	X	X

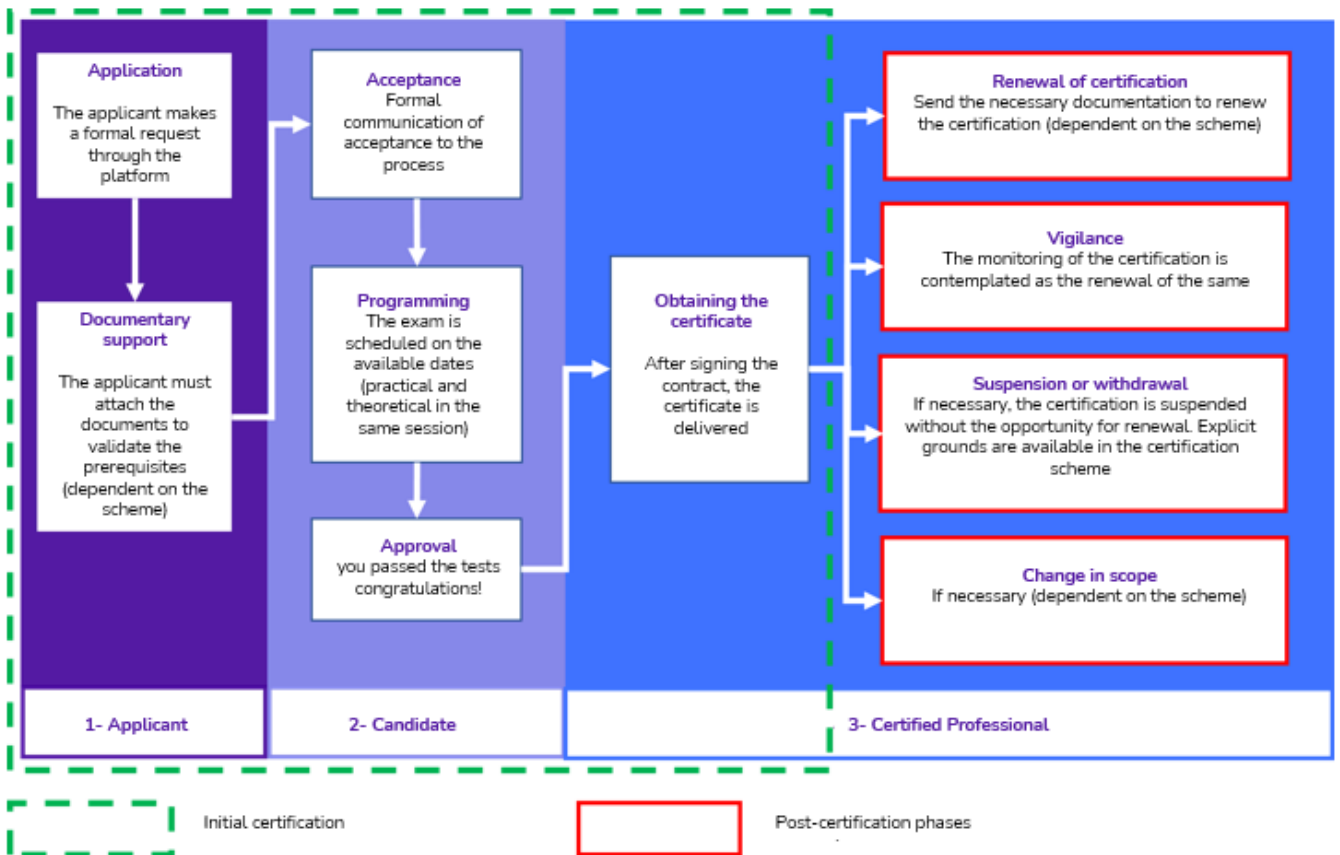
Who should take this exam?

This exam is ideal for responsible individuals or teams seeking to understand the business potential of Big Data & Data Science and related technologies on the development of organizations.

Roles such as: Software engineers, application developers, I.T. architects, business analysts, data analysts, project managers, systems analysts. For individuals or teams who are involved in system or database administration and big data analysis, and who are looking to move towards Big Data.

Certification process

The following chart shows the general life cycle for obtaining a certification:



Each of the phases for obtaining certification for the first time is described below; the phases after obtaining the certificate (red-bordered boxes) will be explained later.

- 1. Request for certification:** the applicant submits his or her certification application, on the QuizLab platform or through the partner company (where the applicant has taken his or her training). Once the application is approved, the applicant's profile is created in CertMind.
- 2. Documentary support:** the applicant must attach in the CertMind platform his or her identity document and additionally complete the registration of his or her resume (CV).
- 3. Verification and acceptance:** the platform verifies the applicant's compliance with the prerequisites, once verified, the application is accepted and the applicant becomes a candidate for the certification process.

4. Programming: the call for the presentation of the exam is made, directly on the platform or through its representative. The format of the exam is explained below:

- **Type:** 40-question, multiple-choice, single-answer online exam.
- **Duration:** 60 minutes.
- **Minimum passing grade:** 28/40 or 70%.
- **Additional time:** If the professional does not take the exam in his/her native language, he/she will have an additional 15 minutes and is also allowed to use a dictionary.
- **Supervision:** CertMind monitors the tests to ensure that they are performed correctly and transparently through the Invigilator Program (also known as "Proctor"). To learn more about this surveillance mechanism, please visit the following website www.certmind.org
- **Open book:** No.
- **Modality:** Available online only on the CertMind platform.
- **Validity :** 5 Years.
- **Others :** All applicants are required to read and accept the company's code of ethics and terms and conditions.

Levels of Difficulty: Bloom's Taxonomy

Bloom's Taxonomy is a theory known in the educational sector because many teachers consider it suitable for evaluating the cognitive level acquired in a subject. The objective of this theory is that after a learning process, the learner acquires new skills and knowledge. The following table presents a description of the categories of Bloom's taxonomy present in the certification exam, as well as a description of in the certification exam, as well as the percentage of each type of question in the exam.

Module	Level 1	Level 2	Level 3
Description	Knowledge. It can comprise remembering a wide range of elements, from specific data to complete theory. But all that is needed is to bring to mind the appropriate information.	Compression. This can be demonstrated by passing, or translating, material from one form to another (words to numbers), interpreting the material (explaining or summarizing), and estimating future trends (predicting consequences or effects).	Application. Refers to the ability or capacity to use the material learned in concrete, new situations.
Percentage of questions present in the exam	40%	45%	15%

Note: For more information on the monitoring system visit our web site <https://certmind.org>.

5. Obtaining the certificate: once the exam is passed and the terms and conditions contract is accepted, the certification is delivered.

Renewal, surveillance and withdrawal of certification

This phase occurs after the professional has obtained his or her certification. Renewal refers to the reissuance of the certification once its validity has come to an end. Surveillance refers to CertMind's supervision of the professional's performance during the period between certification and recertification to ensure compliance with the stipulations of this certification scheme. The activities that the certified professional must perform in order to obtain recertification are described below:

1. Application for recertification: before the certification becomes invalid, the certified professional submits his or her recertification application on the QuizLab platform. In case the certification loses its validity, the professional must go through the certification process again.

2. Registration of PUC's: the certified professional is required to register 15 PUC's every 5 years for certification renewal.

For more information about the Professional Update Credits (PUC) system visit our website <https://certmind.org>. The certified professional must attach the supports that accredit the PUC's in the CertMind platform.

3. Validation of documentation: the platform verifies compliance with the PUC's of the certified professional, once verified, the recertification application is accepted.

4. Obtaining recertification: Once the documents have been validated, the new certification is delivered.

Criteria for suspension or withdrawal of certification

Certification will be withdrawn from the professional in the following cases:

1. Failure to comply with the code of ethics.
2. Failure to comply with the requirements of the scheme.
3. Unsatisfactory results of the surveillance process.
4. Inability to continuously meet the competency requirements of the scheme.

Changes to the certification scheme

The Big Data & Data Science certification scheme does not contemplate changes in the scope as currently there are no extensions or reductions in the scope or level of the certification.



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